

Online sexual activities among university students: relationship with sexual satisfaction

Lorena Gutiérrez-Puertas, Verónica V. Márquez-Hernández, Vanesa Gutiérrez-Puertas, Genoveva Granados-Gámez, M. Carmen Rodríguez-García, and Gabriel Aguilera-Manrique

University of Almería (Spain)

Título: Actividades sexuales online en estudiantes universitarios: relación con la satisfacción sexual.

Resumen: Este estudio explora las actividades sexuales a través de internet y analiza la relación entre estas actividades y la satisfacción sexual. Un total de 236 estudiantes universitarios completaron los cuestionarios administrados. Los resultados indicaron que las actividades sexuales online más realizadas fue la búsqueda de temas sexuales, ligar a través de chats y consultar videos eróticos o pornográficos. Con respecto a la relación entre las actividades sexuales online y la satisfacción sexual, se encontró que los participantes que manifestaron no buscar información sexual así como no utilizar chats para conversaciones sexuales, obtuvieron una mayor puntuación en satisfacción sexual. En conclusión, aunque la realización de actividades a través de internet con fines sexuales tiene una alta prevalencia, no queda acreditada de manera suficiente su influencia en la obtención de una mayor satisfacción sexual.

Palabras clave: Satisfacción sexual; internet; actividades sexuales online; sexualidad, estudiante universitario.

Abstract: This study explores online sexual activities and analyzes the relationship between these activities and sexual satisfaction. A total of 236 university students completed self-reported scales. The results indicated that the most frequent online sexual activities were: searching for sexual issues, flirting via chat rooms and viewing erotic or pornographic videos. With regards to the relationship between online sexual activities and sexual satisfaction, it was found that participants, who reported not seeking sexual information as well as not using chatrooms for sexual conversations, obtained a higher score in sexual satisfaction. In conclusion, although engaging in activities online for sexual purposes has a high prevalence, its influence on obtaining greater sexual satisfaction is not sufficiently proven.

Keywords: sexual satisfaction; internet; online sexual activities; sexuality; university students.

Introduction

The Internet is a useful tool that is easy to access, which allows you to connect anywhere and at any time of the day. This has made it a means of socialization, entertainment and of searching for essential information in our lives (Sinkkonen, Puhakka, & Meriläinen, 2014). Young people use the internet for numerous activities such as playing; studying; establishing social relationships with friends or meeting new people, as well as, searching for information (Ballester-Arnal, Giménez-García, Gil-Lario, & Castro-Calvo, 2016). This search for information may be related, among other things, to sexual activities (Daneback, Månsson, & Ross, 2012).

Through the internet, the main contents related to sexuality include online sexual activities related to recreation; entertainment; searching for information about sex; sexual problems and concerns or sexuality; buying online materials; searching for sexual partners; sexual arousal; viewing, downloading or sharing sexual material; and discussing sexual matters (Daneback et al., 2012; Shaughnessy, Byers, Clowater, & Kalinowski, 2013). Several authors indicate that the prevalence of these activities is high (Ballester-Arnal et al., 2016; Zheng, Zhang, & Feng, 2017).

Participation in online sexual activities has been associated with a greater search for information on sexual matters using this medium (Daneback et al., 2012). In addition, sev-

eral studies have stated that using the internet for sexual matters could have a positive impact on individuals (Daneback et al., 2012; Daneback, Sevcikova, Månsson, & Ross, 2013). In fact, using the internet to search for information about aspects, activities and sexual preferences can be beneficial for exploring sexuality as well as favoring sexual development (Shaughnessy et al., 2013). In a study carried out in Spain, over half of the participants (68.4%), indicated that they use the internet to search for information on sexual matters, considering it the most popular medium and the most useful for these issues (González-Ortega, Vicario-Molina, Martínez, & Orgaz, 2015).

Previous studies have found that the type of sexual activity as well as the search for online information varies according to gender and other socio-demographic variables (Albright, 2008; Anisimowicz & O'Sullivan, 2017; Wéry & Billieux, 2016). Thus, men indicate using it to access more erotic or pornographic content (Shaughnessy et al., 2013), while women use more chatrooms to meet people (Albright, 2008; Daneback et al., 2013).

Several studies have analyzed the use of the internet as a means to satisfy sexual needs (Ballester-Arnal et al., 2016; Shaughnessy et al., 2013). According to some authors, people who are sexually dissatisfied with their partner make greater use of online sexual activities, which can translate into low quality of intimate relationships (Schimmenti, Passanisi, Gervasi, Manzella, & Famà, 2014). Along the same lines, engaging in online sexual activities has been associated with higher levels of sexual arousal (Zheng & Zheng, 2014), an element that influences sexual satisfaction (Štulhofer, Buško, & Brouillard, 2010). Communication is another factor that influences sexual satisfaction, relating an inadequate com-

* Correspondence address [Dirección para correspondencia]:

Verónica V. Márquez-Hernández, PhD, RN. Department of Nursing, Physiotherapy and Medicine. Faculty of Health Sciences. Research Group of Health Sciences CTS-451. University of Almería Sacramento S/N, en La Cañada de San Urbano CP: 04120. Almería (Spain). E-mail: vmh380@ual.es
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munication with infidelity, consequently increasing online sexual activities (Li & Zheng, 2017).

In addition, results from different studies show that engaging in online sexual activities translates into an increased likelihood of developing affective disorders, low self-esteem and decreased psycho-social well-being, which affects sexual satisfaction (Jonsson, Baldh, Priebe, & Svedin, 2015; Noll, Shenk, Barnes, & Haralson, 2013). As described above, it have been explored the different sexual activities that are carried out through the Internet, and how they can be related to the sexual behaviour of the participants. However, we do not have found studies that analyze sexual satisfaction in relation to online sexual activities, specifically in university students, which makes this study a novel research. Based on the aforementioned points, the purpose of this study was to explore online sexual activities and analyze the relationship between these activities and sexual satisfaction.

Methods

Participants

A convenience sampling was conducted for the selection of the sample. The sample consisted of 236 university students. The inclusion criteria were to be over 18 years old, to be enrolled in the University of Almeria and to sign the written informed consent. Being an exchange student was established as exclusion criteria. Of the total participants ($N=236$), 24.2% ($n=57$) were men and 75.8% ($n=179$) were women. The average age of the sample was 22.08 years old ($SD=4.99$). Considering the academic year, 46.6% ($n=110$) of the participants were in their second year, and 53.4% ($n=126$) in their third. With regards to marital status, 86.4% ($n=204$) was single, 2.5% ($n=6$) married and 11% ($n=26$) had another status. Regarding romantic relationships, 42.8% ($n=101$) indicated that they had no steady partner compared to 57.2% ($n=135$) who said they did. The average duration of a steady couple was 2.07 years ($SD=3.43$).

Data Collection Tools

Internet and Sexuality Questionnaire developed by Ucar, Golbasi and Senturk (2016) was used for data collection. The questionnaire consists of four sections. The first section included questions on sociodemographic characteristics such as age, sex, marital status, and place of residence. The second section was composed of questions related to the use of the Internet (whether they had a computer, the device used to connect to the Internet the most, frequency of Internet use, use of the Internet to chat or have sex with chat participants). The third section included questions about using the Internet for sexual matters (obtaining sexual information, talking about sexual matters in chatrooms, buying sex items online and accessing erotic and/or pornographic files). The fourth section addressed the students' opinion about the use of the Internet for sexual matters. This section consisted of

11 items, using a Likert scale with three options (agree, no idea, or disagree) to answer. The students had to mark one of the three options.

New Sexual Satisfaction Scale (NSSS) was used to know the level of sexual satisfaction among the university students. This scale had been developed and validated by Stulhofer et al (2010), it obtained very good reliability and validity (Cronbach's alpha = 0.94-0.96). This scale consists of 20 items rated with a Likert scale from 1 to 5, with 1 corresponding to extremely satisfied and 5 extremely dissatisfied. The items are divided into two dimensions, the first being the *ego focused* dimension (1-10) and the second dimension being the *Partner and Sexual Activity-centered* (11-20). The score range is 20-100. Higher scores correspond to a higher degree of sexual satisfaction. Cronbach's alpha in this study was 0.92.

Procedure

Firstly, approval of the project was requested from the Institutional Review Board. Once the approval for the data collection was obtained, the questionnaires were administered online, through the University's social media. On the other hand, teachers from other departments were summoned to request their collaboration, which consisted of inviting students to a session. In this session, the main researcher explained the objective of the study, its voluntary nature and the anonymous and confidential treatment of the data, as well as the possibility of leaving the study at any time. Students interested in participating signed the written informed consent. The questionnaires were completed in a university classroom. Once filled in, the students left the questionnaires in a closed box located in a corner of the classroom. This took approximately 30-40 minutes. At the end of the session, the researcher thanked the participants for their collaboration. The data collection took place between January and December of 2017.

The research project was approved by the Institutional Review Board, according to the Declaration of Helsinki. All participants were informed of the purpose of the study, its voluntary nature and the anonymous treatment of the data. The university students, who voluntarily decided to participate, signed the written informed consent.

Statistical analysis

The data was analyzed with the Statistical Package for the Social Sciences version 23. First, a descriptive analysis of sociodemographic variables was conducted, calculating measures of central tendency and dispersion [mean (M) and standard deviation (SD)], for quantitative variables, while for categorical variables, frequencies and percentages were determined. The Chi square test was used to compare qualitative variables. The Spearman Correlation Test was used to compare quantitative variables. The non-parametric Mann Whitney and Kruskal-Wallis U tests were used to compare

the qualitative and quantitative variables. A $p < 0.05$ was considered significant.

Results

Sexuality and Internet

With regards to using computer and the internet, all participants stated that they had their own computer. The majority (89.4%, $n=211$) used their cell phone to connect to the internet. However, 49.2% ($n=116$) reported having sex through chatrooms (Table 1).

Regarding the use of the internet for sexual matters, the most sought after sexual issue was menstruation (58.1%) and pregnancy (55.9%), compared to virginity (11.4%), which was the least addressed issue. The most discussed sexual issue through chatrooms was flirting (60.6%, $n=143$). On the other hand, the most purchased object through the internet was underwear (35.6%, $n=84$). Finally, the erotic or pornographic documents consulted most were videos/films (63.1%, $n=149$) (Table 1).

Statistically significant differences were found when comparing the purchase of items through the internet with regards to sex, showing that women indicated that they bought more underwear through the internet than men ($X^2(1)=6.931$, $p=0.006$). However, men reported buying more sexual enhancers ($X^2(1)=18.635$; $p<.05$) and sexual desire enhancers ($X^2(1)=17.942$; $p<.05$) than women. With regards to access to erotic and pornographic documents, men reported consulting more magazines than women ($X^2(1)=19.226$; $p<.05$).

Regarding opinions on using the Internet for sexual matters, table 2 shows the answers for each of the items. No statistically significant differences were found with regards to sex, although there were differences between having a stable partner or not in certain items (Table 2).

Table 1. Information about the use of a computer and the use of the internet for sexual matters.

Item	<i>n</i>	%
Own Computer	236	100
Internet connection through:		
Computer	25	10.6
Smartphone	211	89.4
Frequency with which you use the internet (hours per week):	37.31*	24.46**
Use the internet to chat:		
Yes	15	6.4
No	221	93.6
Sexual relationships in chatroom:		
Yes	120	50.8
No	116	49.2
Sexual information topics:		
Male-female relationships	95	40.3
Menstruation	137	58.1
Flirt	69	29.2
Sexual intercourse	111	47
Pregnancy	132	55.9
Virginity	27	11.4
Sexual problems	118	50
Chat sexual topics:		
Flirt	143	60.6
Sexual knowledge sharing	111	47
Sexual intercourse	131	55.5
Sexual problems	89	37.7
Shop sexual items:		
Underwear	84	35.6
Pornographic films	4	1.7
Sexual enhancers	16	6.8
Pornographic books/magazines	2	0.8
Condom	18	7.6
Sexual desire enhancers	26	11
Access erotic and pornographic files:		
Videos/films	149	63.1
Photos	74	31.4
Cartoons	7	3
Journals/magazines	18	7.6
Books	40	16.9

*Mean **Standard Deviation

Table 2. Comparison of opinions on using the internet for sexual matters and having a steady partner.

Item	In a relationship												<i>p</i>
	Yes (<i>n</i> =135)						No (<i>n</i> =101)						
	I agree		No idea		I disagree		I agree		Noidea		I disagree		
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	
The Internet is a reliable source of information about sexual matters	18	13.3	51	37.8	66	48.9	19	18.8	36	35.6	46	45.5	0.519
Obtaining sexual information on the Internet is easier for young people	112	83.0	17	12.6	6	4.4	90	89.1	7	6.9	4	4.0	0.349
Most of the sexual information on the Internet affects young people's sexual health negatively	46	34.1	69	51.1	20	14.8	30	29.7	46	45.5	25	24.8	0.157
Young people may not be able to evaluate the accuracy and reliability of the sexual information on the Internet	104	77	19	14.1	12	8.9	82	81.2	16	14.1	3	8.9	0.180
Young people mostly find their sexual relationships on the Internet	35	25.9	60	44.4	40	29.6	27	26.7	49	48.5	25	24.8	0.697
Young people find Internet relationships more satisfying than the real life relationships	13	9.6	59	43.7	63	46.7	13	12.9	33	32.7	55	54.5	0.217
Mostly shy and unsociable young people use the Internet for sexual matters	64	47.7	53	39.3	18	13.3	39	38.6	34	33.7	28	27.7	0.022
The sexual information on the Internet reduces sexual problems	9	6.7	62	45.9	64	47.4	22	21.8	37	36.6	42	41.6	0.003

Item	In a relationship												<i>p</i>
	Yes (<i>n</i> =135)						No (<i>n</i> =101)						
	I agree		No idea		I disagree		I agree		Noidea		I disagree		
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	
The sexual information on the Internet plays a role in increasing communication with the opposite gender	35	25.9	66	48.9	34	25.2	33	32.7	47	46.5	21	20.8	0.482
Young people can talk about sexual matters more freely on the Internet	101	74.8	24	17.8	10	7.4	69	68.3	23	22.8	9	8.9	0.542
Using the Internet for sexual matters affects young people negatively	34	25.2	66	48.9	35	25.9	27	26.7	47	46.5	27	26.7	0.935

Sexual Satisfaction

The average score of the sexual satisfaction scale was 63.95 ($SD=11.81$), while for the ego-focused dimension it was 32.71 ($SD=6.21$) and the Partner-and Sexual Activity-Centered subscale was 31.24 ($SD=6.60$). The average scores of each item can be seen in table 3.

No statistically significant differences were found when comparing age with the total score of the scale ($r=-0.025$, $p=.699$) or with each of the subscales: ego focused ($r=-0.068$; $p=.296$) and partner-and sexual activity-centered ($r=0.027$, $p=.681$). No statistically significant differences were found

when comparing the total score of sexual satisfaction with the sex of the participants either ($U=4559.500$, $Z=-1.208$, $p=.227$).

On the other hand, statistically significant differences were found when comparing marital status with the total score of the scale ($X^2(2)=6.227$, $p=0.044$), with a higher score for single participants (63.66 ± 12.35) than those who were married (59.33 ± 2.65). Statistically significant differences were also found with respect to the ego focused subscale ($X^2(2)=8.865$, $p=.012$), the single participants (32.73 ± 6.48) obtaining a higher score than married ones (27.50 ± 1.64).

Table 3. Answers to the Sexual Satisfaction Scale

Item	<i>M</i>	<i>SD</i>
Ego Focused	1. The intensity of my sexual arousal	3.28
	2. The quality of my orgasms	3.27
	3. My "letting go" and surrender to sexual pleasure during sex	3.22
	4. My focus=concentration during sexual activity	3.03
	5. The way I sexually react to my partner	3.31
	6. My body's sexual functioning	3.34
	7. My emotional opening up in sex	3.11
	8. My mood after sexual activity	3.75
	9. The frequency of my orgasms	3.10
	10. The pleasure I provide to my partner	3.31
Partner- and Sexual Activity-Centered	11. The balance between what I give and receive in sex	2.97
	12. My partner's emotional opening up during sex	3.04
	13. My partner's initiation of sexual activity	3.51
	14. My partner's ability to orgasm	3.62
	15. My partner's surrender to sexual pleasure ("letting go")	3.28
	16. The way my partner takes care of my sexual needs	3.11
	17. My partner's sexual creativity	2.83
	18. My partner's sexual availability	3.32
	19. The variety of my sexual activities	2.67
	20. The frequency of my sexual activity	2.89

Sexual activities online and sexual satisfaction

Considering the use of the Internet for sexual matters and sexual satisfaction, it was observed that those who did not seek sexual information to flirt indicated greater sexual satisfaction ($U=4776.500$, $Z=-2.066$, $p=.039$). In addition, those who said they did not talk about sexual relations in chatrooms, obtained higher scores in the ego-focused di-

mension ($U=5858.0$, $Z=-9.960$, $p<.05$). In addition, participants who indicated that they did not access erotic and/or pornographic magazines obtained a higher score in the partner-and sexual activity-centered dimension ($U=1223.500$, $Z=-2.658$, $p=0.008$).

No correlation was found when comparing sexual satisfaction with opinions on using the Internet for sexual matters (Table 4).

Table 4. Correlation between opinions on using the internet for sexual matters and New Sexual Satisfaction Scale

		Ego Focused		Partner- and Sexual Activity-Centered		Total Score	
		<i>r_s</i>	<i>p</i>	<i>r_s</i>	<i>p</i>	<i>r_s</i>	<i>p</i>
Opinions on using the Internet for sexual matters	Item 1	-0.069	.293	0.046	.479	-0.010	.878
	Item 2	0.111	.088	0.117	.074	0.134	.040
	Item 3	-0.099	.128	-0.051	.439	-0.074	.256
	Item 4	0.006	.929	-0.001	.992	0.002	.973
	Item 5	0.044	.500	0.051	.440	0.047	.468
	Item 6	-0.024	.716	-0.008	.907	-0.028	.672
	Item 7	0.008	.900	0.064	.327	0.041	.531
	Item 8	0.073	.261	0.079	.225	0.088	.180
	Item 9	-0.012	.855	0.077	.241	0.033	.610
	Item 10	0.101	.123	0.057	.380	0.082	.211
	Item 11	-0.054	.407	-0.086	.189	-0.068	.300

Discussion

The aim of this study was to explore online sexual activities and analyze the relationship between these activities and sexual satisfaction.

Sexuality and Internet

First, regarding sexuality and the internet, in this study, the prevalence of online sexual activities is high, coinciding with the data reported in other studies (Shaughnessy et al., 2013; Zheng & Zheng, 2014). However, the most used means to connect to the Internet was the smartphone, as well as, in the study conducted by Zheng et al (2017) in which most of the participants indicated using their smartphone for some type of sexual activity.

Among the sexual activities practiced, almost half of the participants indicated having had sex through chatrooms, a figure higher than that indicated in the study by Wéry and Billieux (2016). Along the same lines, more than half of the participants indicated that they use the Internet to flirt, which is a larger figure than those seen in other studies (Richters et al., 2014; Wéry & Billieux, 2016). In the study conducted by Zhen et al. (2017), it was observed that the increase in smartphone use is associated with having sexual relations or flirting, coinciding with the data obtained in this study.

Regarding the search for information, one of the most consulted issues was pregnancy. This may be due to the higher rates of unwanted pregnancies at the university stage (Finer & Henshaw, 2006). On the other hand, menstruation was another of the most searched subjects. Women tend to show an interest in issues related to menstruation to ensure adequate use of contraceptives, prevent pregnancy or have sexual intercourse around the menstrual cycle (Richman, Webb, Brinkley, & Martin, 2014). Virginity was the subject least consulted, since most of the students at the university age have had sex (Shaughnessy et al., 2013).

In relation to purchasing sexual material, statistically significant differences were observed between women and men. Women bought more underwear while men bought

more sexual enhancers. This data aligns with what was reported by Ucar et al. (2016). When it came to the search and viewing of erotic or pornographic documents, the most consulted were films or videos due to the sexual gratification they produce (Wéry & Billieux, 2016). In contrast, in young people, viewing pornographic documents has been associated with the increase of sexual arousal and satisfaction of curiosity about sex (Li & Zheng, 2017). Along the same lines, the results obtained show that men consult more pornographic magazines through the internet than women. This fact could be related to gratification behaviors, such as masturbation (Bridges & Morokoff, 2011; Döring, 2009), being more frequent in men than in women (Shaughnessy et al., 2013).

Regarding opinions on using the Internet for sexual matters, no differences were found in relation to sex. Additionally, the participants with a partner did not agree that the sexual information on the internet reduces sexual problems. While it is true, that the internet is an appropriate means to search for sexual information and online sexual advice, this information may be inadequate (Wéry & Billieux, 2016).

Sexual Satisfaction

Second, regarding sexual satisfaction, the total score of the scale was slightly above the average. The results obtained are lower than those shown by university students in the United States and Croatia (Štulhofer et al., 2010). On the other hand, no statistically significant differences were found in relation to sexual satisfaction with regards to age or sex, which coincides with other studies (Hald, Štulhofer, & Lange, 2018; Štulhofer et al., 2010). In contrast, differences were determined in terms of marital status. Single participants showed greater sexual satisfaction than married women. Similarly, several studies indicate that couples feel that their sexual satisfaction decreases with time (Frederick, Lever, Gillespie, & Garcia, 2017; O'Leary, Acevedo, Aron, Huddy, & Mashek, 2012), in addition to indicating that they find it difficult to maintain sexual satisfaction over time (Hald et al., 2018). On the other hand, having no partner causes an increase casual relationship, considered more sexually satisfying than those established within long-term

committed relationships according to Mark, Garcia, and Fisher (2015).

Sexual activities online and sexual satisfaction

Lastly, in relation to sexual satisfaction and the search for sexual information to flirt, the participants who did not seek sexual information to flirt indicated having greater sexual satisfaction. However, married and divorced people are more likely than single people to connect to the internet, to look for new experiences within married couples and to establish a serious relationship with divorcees (Albright, 2008).

Referring to participants who did not access erotic and/or pornographic magazines, they obtained a higher score in the partner-and sexual activity-centered dimension. This data coincides with other studies, in which the people most satisfied with their sexual life are those who view pornographic or erotic materials the least (Maddox, Rhoades, & Markman, 2011).

On the other hand, those who said they did not talk about sexual relationships in chatrooms showed a higher level of satisfaction in the ego-focused dimension. Other authors have indicated that the internet could be a new way to satisfy the sexual desires of individuals in different ways (Ballester-Arnal et al., 2016). In the same way, the people who use it the most are those who feel less satisfied with their sexual life (Döring, 2009).

The results of this study should be considered taking into account a series of limitations. First of all, the selection of

the sample was for convenience, an aspect that affects the generalization of the results. In addition, only measures and evaluations based on self-report were used. Although these reports are standard in sexual research, they may not always be accurate, because they introduce the possibility of systematic biases. Another limitation of the study was not to consider the sexual orientation of the respondents. This information should have been gathered to understand the online sexual activities that they engaged in and the relationship with sexual satisfaction. There are authors who establish differences in sexual satisfaction between homosexual and heterosexual men (Gil, 2007; Purdam, Wilson, Afkhami, & Olsen, 2008). On the other hand, the results may be biased by the response of social desirability. Finally, the lack of research and the diversity of methodologies employed, hinders the development of an adequate discussion, highlighting the novel and interesting aspect of the study, having been studied in little depth.

The internet allows a high variety of activities related to sexual content. The most popular online activities related to sexuality are the search for sexual matters, linking through chats and accessing erotic or pornographic videos. Activities such as seeking sexual information to flirt or hold sexual conversations in chatrooms have not been shown to increase the sexual satisfaction of the participants. However, despite being a novel research topic, it is necessary to conduct new research that delves into the different ways in which the Internet can influence sexual satisfaction.

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